R E P O R T R E S U M E S

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EFFECT OF TIME OF TRANSITION FROM MANUSCRIPT TO CURSIVE WRITING UPON SUBSEQUENT PERFORMANCE IN HANDWRITING, SPELLING, AND READING.

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DESCRIPTORS- *GRADE 4, *GRADE 6, *READING RESEARCH, *HANDWRITING SKILLS, *READING ACHIEVEMENT, HANDWRITING, SPELLING, SEX DIFFERENCES, WISCONSIN SCALE,

THE RELATIONSHIP OF THE HANDWRITING, READING, AND SPELLING PERFORMANCE OF FOURTH- AND SIXTH-GRADE CHILDREN TO THE TRANSITION TIME FROM MANUSCRIPT TO CURSIVE WRITING WAS STUDIED. THE FOUR TRANSITION TIMES WERE EITHER THE FIRST OR SECOND SEMESTER IN GRADE 2 OR THE FIRST OR SECOND SEMESTER IN GRADE 3. HANDWRITING LEGIBILITY WAS MEASURED BY THE WISCONSIN SCALE, A 7-POINT SCALE, AND BY A SCALE PROVIDED WITH THE CALIFORNIA ACHIEVEMENT BATTERY, A 7-POINT SCALE. HANDWRITING SPEED WAS MEASURED. THE CALIFORNIA ACHIEVEMENT TESTS WERE USED TO MEASURE ACHIEVEMENT IN READING AND SPELLING. ANALYSES OF VARIANCE WERE RUN. THERE WAS NO SIGNIFICANT DIFFERENCE BETWEEN TRANSITION TIME AND TOTAL READING SCORE. THERE WAS A SIGNIFICANT INTERACTION BETWEEN TRANSITION TIME AND GRADE ON THE VOCABULARY SUBTEST. IN SPELLING ACHIEVEMENT, SIGNIFICANT DIFFERENCES WERE FOUND BETWEEN TRANSITION GROUPS, SEX, AND GRADE LEVEL. IN TERMS OF SPEED OF WRITING, DATA INDICATED THAT POSTPONEMENT OF TRANSITION UNTIL THE LAST HALF OF THIRD GRADE WAS BEST. IT APPEARED THAT WHEN INCREASED SPEED WAS ASSOCIATED WITH LATE TRANSITION, LEGIBILITY WAS DECREASED. SIGNIFICANT DIFFERENCES CONCERNING LEGIBILITY WERE FOUND ACCORDING TO TRANSITION TIME WHEN LEGIBILITY WAS MEASURED BY THE WISCONSIN SCALE. THE FINDINGS SEEM TO SUPPORT RECONSIDERATION OF THE EFFECT OF INTRODUCING CURSIVE WRITING IN FIRST GRADE UPON SYMBOL PERCEPTION IN READING. A DISCUSSION AND REFERENCES ARE INCLUDED. THIS PAPER WAS PRESENTED AT THE AMERICAN EDUCATIONAL RESEARCH ASSOCIATION CONFERENCE (CHICAGO, FEBRUARY 6-11, 1968). (BK)

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Effect of Time of Transition from Manuscript to Cursive Writing upon Subsequent Performance in Handwriting, Spelling, and Reading*

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The common practice in handwriting instruction is first to introduce manuscript style and then, usually at some time between the beginning of second and the end of third grade (6, Chapter 1; 8), to change to cursive style. Defense of the initial introduction of manuscript style is based upon the belief that (a) primary children are better able to produce the basic strokes characteristic of manuscript letter forms than those required in cursive writing (1), and (b) the reinforcement and consistency derived from initial exposure to manuscript writing and printed letter forms will enhance subsequent performance in reading, spelling, and cursive writing (2; 3; 4; 5; 7). There is some support for the initial introduction of manuscript style, but there is neither general consensus nor definitive research regarding the most advantageous time to make the transition from manuscript to cursive writing. The purpose of this study was to determine whether there is an optimum time for the transition.

The rationale for the present investigation was based upon the premise that the best test of the effect of modifications in educational practice is its long range impact. While measurements taken during and shortly after the institution of altered curricular practice provide some

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indication of its effect, a more rigorous and realistic test is its more lasting impact upon individual behavior. Therefore, the approach was to make observations of the handwriting, reading, and spelling performance of fourth and sixth grade children who had undergone the transition from manuscript to cursive handwriting at different times in their early elementary school experience. The specific purpose of the study was to determine if the handwriting, reading, and spelling performance of fourth and sixth grade children is related to the time at which the transition from manuscript to cursive handwriting was made. Both fourth and sixth grade pupils were included in order to get evidence relevant to the notion that perhaps relationships would change with the passage of time and interjected experiences.

Method

Selection of Subjects

The decision was to select subjects from the entire population of fourth and sixth grade pupils in Wisconsin who had made the transition from manuscript to cursive handwriting at one of the four following times: first semester, Grade 2; second semester, Grade 2; first semester, Grade 3; second semester, Grade 3. Accordingly, a brief questionnaire was sent to all those public school districts in the state listed in the current public school directory having at least 100 pupils in the elementary grades. The chief school administrator was asked to indicate (1) the system of handwriting instruction in use, (2) how long the system had been in use, (3) the grade and semester at which the transition from manuscript to cursive writing is made, (4) how long the transition time had been in

effect, and (5) the number of school buildings in the district. Of 435 questionnaires sent, 379 - or more than 87 per cent - were completed and returned. Thus, a number of schools (see Table I), almost all of which

/ Insert Table I about here /

had been using their current transition time for five or more years, were identified at each of the transition times selected for study. When it was found that instructional materials published by the Zaner-Bloser Company were used in most districts, the decision was to sample subjects only from those districts. The reasoning was that this would provide at least some control over the instructional variable and give assurance that all subjects had been taught the same letter forms.

Three districts were chosen at random from each transition time category, for a total of twelve districts. In only one instance was it necessary to choose an alternate. Once a commitment to participate had been obtained, a representative (i.e. curriculum coordinator, elementary supervisor, or building principal) from each district was asked to choose at random, from among the pupils who had been in the district continuously from the time of transition, five boys and five girls from Grades 4 and 6, respectively, to participate in the study. Thus, fifteen children of each sex at each grade level from each transition time served as subjects, for a total sample of 240 children.

Collection and Analysis of Data

The reading and spelling subtests of the California Achievement Tests, Elementary, Form Y, 1957 Edition, were used to assess achievement in reading and spelling. Administration and scoring procedures were in accord

with directions given in the manual. To assess pupils' achievement in handwriting, both speed and legibility were considered. A task and scoring procedure were devised specifically for the study. The testing was completed in a single session with the pupils from each school.

The basic handwriting task was to copy the following selection, which includes the standard sentences that appear in the two scales that were used to make legibility ratings:

> Sometimes the fox teases the poodle. The quick brown fox jumps over the lazy dog. But they really are good friends. The quick brown fox just came over to greet the lazy poodle. Later on they will share a can of dog food for lunch, and then they will take a nap in the sun. Now the fox is going to chase rabbits and the lazy poodle is going to take a nap before lunch.

The pupils were instructed to copy the selection in their normal handwriting. They were neither given more explicit instructions nor told the purpose for which they were writing. The samples were written with pencils on standard 8 1/2" x 11" lined paper. Exactly one minute after they had begun the task, the pupils were asked to stop and put a large X after the last word written. Then they were permitted to complete the task, untimed and without further interruptions.

Each pupil's speed of writing score was the number of letters he produced during the first minute of the copying task. Two legibility

scores were obtained for each pupil by making use of two different legibility scales. The two ratings provided a reliability check on the scales used. Assignment of the legibility ratings can be briefly described.

Three judges rated the two standard sentences produced by each pupil according to the appropriate scale. The sentence "The quick brown fox just came over to greet the lazy poodle" was rated with the 7-point Handwriting Scale provided with the California achievement battery. The sentence "The quick brown fox jumps over the lazy dog" was rated with a 7-point scale - referred to hereafter as the Wisconsin Scale - that was devised for this study according to procedures outlined by Herrick and Erlebacher (6; Chapter 8). Interjudge reliability ratings were .77, .69, and .72 with the California Scale and .85, .80, and .74 with the Wisconsin Scale. When the average of the three judges ratings was assigned as the legibility score for each sample sentence, the between scales correlation was .79.

Separate analyses of variance were run with each of the following sets of scores: raw scores from the vocabulary, comprehension, total reading and spelling subtests of the California; total numbers of letters produced in one minute; and the totals of the three judges' legibility ratings with the California and with the Wisconsin scale. The scores were categorized by transition time, grade, sex, and school.

Results

Reading

Mean reading scores are given by grade and transition time in Table II. The variance analysis of the total reading scores revealed no

/ Insert Table II about here /

significant transition time effect, nor were there significant effects by school or sex. As would be expected, total reading scores did differ by grade ($p < .005$). No significant transition time or sex effects were shown by the comprehension or vocabulary subtest variance analyses; but there was a significant difference among schools on both the vocabulary ($p < .05$) and the comprehension ($p < .05$) subtests. Differential factors operating within the schools apparently were of greater consequence in later performance on the subtests than was transition time.

For a graphic description of the significant interaction ($p < .05$) between transition time and grade on the vocabulary subtest see Figure I.

/ Insert Figure I about here /

It will be noted that for both fourth and sixth grade children, spring transition time in grade two appears to be associated with retarded vocabulary development; whereas, transition in the fall of the third grade appears to benefit the vocabulary development of fourth graders but to impair performance among sixth graders. In view of the insignificant transition time main effects and the inconsistent interaction pattern, it appears that transition time was of little or no importance as a factor in determining fourth and sixth graders' performance in reading.

Spelling

Mean spelling test scores are given by grade and transition time in Table III. Significant differences ($p < .025$) were found between groups

/ Insert Table III about here /

with different transition times, between sexes ($p < .005$), and between grade levels ($p < .005$). Application of the Scheffe' test for multiple comparison showed that spelling performance differences were significant ($p < .05$) only between the children who made the transition in the spring term of the second grade and those who made the change in the fall term of the third grade. The significant interaction between transition time and sex ($p < .05$) is clarified in Figure II, where it will be noted that

/ Insert Figure II about here /

for both boys and girls the best spelling performance was, on the average, attained by the group that made the transition in the fall term of the third grade. A highly significant interaction was also found between transition time and school ($p < .005$). In other words, while transition time apparently was a factor of some consequence in later spelling performance, its effect varied with school and with sex. Spelling performance, then, was influenced significantly by factors other than transition time. For example, it is clear in Figure II that the spelling performance of girls by transition times was on the average superior to that of the boys, with the exception of spring transition at grade three when the boys showed a slight superiority.

Handwriting Performance

As children move through the elementary grades and develop skill in handwriting, volume of letter production increases and precision of letter formation improves. In assessing the effect of transition time on handwriting performance the factors of speed and legibility were both considered, each being evaluated separately.

The variance analysis showed that the subjects' rate of writing as evidenced by letter production per unit of time differed significantly ($p<.005$) by transition time. No significant differences in writing rates were found between boys and girls or between schools. Mean numbers of letters written per minute are given by transition time and grade in Table IV. Rate of letter production was greater ($p<.005$) among sixth

/ Insert Table IV about here /

graders than among fourth graders. Among the fourth graders, letter production was greater for those who made the transition during the spring rather than fall term of either second or third grade; but no consistent pattern is apparent for sixth graders. The significant interaction ($p<.005$) between transition time and grade is graphically presented in Figure III.

/ Insert Figure III about here /

Poorest performance on the average was noted for those fourth grade children who made the transition in the fall term of grade two; whereas, the sixth graders who made the transition in the spring of the second grade wrote most slowly. Best performance for both sixth and fourth graders was achieved by subjects who had made the transition during the spring term of grade three. In general, it would seem that in terms of speed of writing as evidenced by intermediate grade children, transition from manuscript to cursive handwriting is best made sometime during the third grade rather than the second.

In respect to handwriting legibility as evaluated by the Wisconsin Scale, significant differences ($p<.025$) were found according to the time

the transition was made. For mean legibility scores see Table IV. Application of the Scheffe' test indicated that significant differences ($p<.05$) in legibility occurred only between those pupils who made the transition in the spring term of the second grade and those who made the transition in the spring term of the third grade. On the average, the best performance was achieved by those who made the transition in the spring term of the second grade. It should also be noted that significant differences in legibility were found for grade ($p<.005$) and sex ($p<.005$). The complex interplay of factors is shown by the significant triple interaction ($p<.025$) among transition time, grade, and sex (see Figure IV). The

/ Insert Figure IV about here /

effects attributable to grade and sex are clearly evident. The influence of time of transition is less clear, but apparently it varies with both grade level and sex. For example, the most favorable time for transition for girls was the spring term of the second grade; yet this was the least favorable time for the sixth grade boys. In respect to legibility as measured by the Wisconsin Scale, late transition appears in general to result in relatively poor legibility.

Legibility as evaluated by the California Scale was not significantly influenced by transition time. There were, however, significant differences by sex ($p<.005$) and by grade level ($p<.005$) similar to those found with the Wisconsin Scale. It is interesting to note that there was a significant interaction between transition time and school with both the Wisconsin Scale ($p<.005$) and the California Scale ($p<.05$). Apparently the effect of transition time upon subsequent handwriting legibility varies from school to school.

Discussion and Conclusions

It is apparent that the school term when the transition from manuscript to cursive handwriting is made is not critical in terms of the child's later elementary school reading performance. Thus, the argument that it is important to delay the transition to cursive handwriting until the later primary years, after symbol perception is presumably well established, is not supported by the present data. Although the impact of manuscript writing upon initial symbol perception is not fully clarified by this investigation, there appears to be support for reconsideration of the effect of introducing cursive writing in first grade upon symbol perception in reading. In view of the fact that (a) there is little evidence to indicate that manuscript writing has a positive effect upon symbol perception and (b) the ultimate objective continues to be legible cursive writing, introduction of cursive writing in grade one would appear to be defensible, at least in terms of its impact upon reading performance.

Late transition time was found to have a significant positive effect upon subsequent spelling performance; however, in view of the significant interaction between transition time and school and between transition time and sex, one might question the meaning which can be attached to this effect. For example, girls are better spellers than boys, but this is not necessarily a function of transition time. Furthermore, although spelling performance was not found to differ significantly among schools, the effect of transition time was dependent upon schools. That is, at the time of transition or later, the presence of a certain set of conditions in some schools tended to result in significant relationships between

transition time and spelling performance. Perhaps a careful analysis of the instructional practices in handwriting and spelling in these schools would help to clarify the nature of these conditions. One might speculate, for example, that the extent to which instruction in handwriting and spelling is coordinated is the critical factor; specific attention to the impact of the transition in both areas should tend to nullify any negative effect upon spelling.

In terms of speed of writing, the data indicate that postponement of the transition until the last half of the third grade is best. In a sense this is strange because pupils who had the least time to develop speed (spring grade three to grade four testing) scored best on the speed trials (see Figure III). Furthermore, in view of the tendency for fourth graders to show the highest legibility with early transition and poorest legibility with late transition (spring grade three), it appears that the price for the increased speed associated with late transition is decreased legibility.

Taken as a whole, the present data offer only meager support at best for any one of the widely used transition times considered in this study. The impact of transition time upon subsequent reading performance appears to be very slight. Its impact upon subsequent spelling performance appears to be dependent upon local practices. And the implications of its impact upon subsequent handwriting performance are dissipated by the conflict inherent in the fact that rapid writing is associated with late transition and legible writing is associated with early transition. The conclusion to be drawn seems to be that when the transition is made is less important than what is offered in the instructional program.

The problem of whether there should be a transition at all is, of course, unresolved. In fact, any one of the following approaches would eliminate the need for a transition: (1) introduce and stay with manuscript writing; (2) introduce and stay with cursive writing; (3) introduce and develop manuscript and cursive writing simultaneously. Research designed to determine whether any of these approaches is associated with superior performance in reading, spelling, and handwriting at various developmental stages is still needed.

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Table I

Summary of Survey Data Regarding
Transition Times and Instructional Materials

Transition Time	Number of Districts Reporting	Number of Districts Using Zaner-Bloser Materials
Grade 2, Fall	6	6 (100%)
Grade 2, Spring	125	94 (75.2%)
Grade 3, Fall	163	132 (81.0%)
Grade 3, Spring	35	27 (77.1%)
Grade 4, Fall	1	1 (100%)
no specific time	44	—
data incomplete	5	—
TOTAL	379	

Table II

Mean Reading Scores of Fourth and Sixth Grade Children Categorized According to Time of Transition From Manuscript to Cursive Handwriting

Test	Grade	Handwriting Transition Time			
		Fall 2nd	Spr. 2nd	Fall 3rd	Spr. 3rd
Reading Vocabulary	4	33.8	31.6	34.6	35.3
	6	43.9	41.0	37.9	42.1
Reading Comprehension	4	43.2	43.7	48.0	45.2
	6	57.6	57.1	57.6	56.8
Total Reading	4	77.0	75.3	82.6	80.5
	6	101.5	98.1	95.5	98.9

Table III

Mean Spelling Scores of Fourth and Sixth Grade Children Categorized According to Time of Transition From Manuscript to Cursive Handwriting

Test	Grade	Handwriting Transition Time			
		Fall 2nd	Spr. 2nd	Fall 3rd	Spr. 3rd
Spelling	4	17.1	16.6	20.6	17.1
	6	23.7	22.0	23.9	22.6

Table IV

Mean Handwriting Scores of Fourth and Sixth Grade Children Categorized According to Time of Transition From Manuscript to Cursive Handwriting

Test	Grade	Handwriting Transition Time: Fall 2nd	Spr. 2nd	Fall 3rd	Spr. 3rd
Number of Letters per Minute	4	32.1	38.6	35.5	44.1
	6	56.6	47.6	52.6	57.7
Wisconsin Scale	4	9.9	9.8	9.2	7.9
	6	11.2	12.6	10.8	10.5
California Scale	4	11.0	11.0	9.8	8.6
	6	12.2	11.7	12.9	12.0

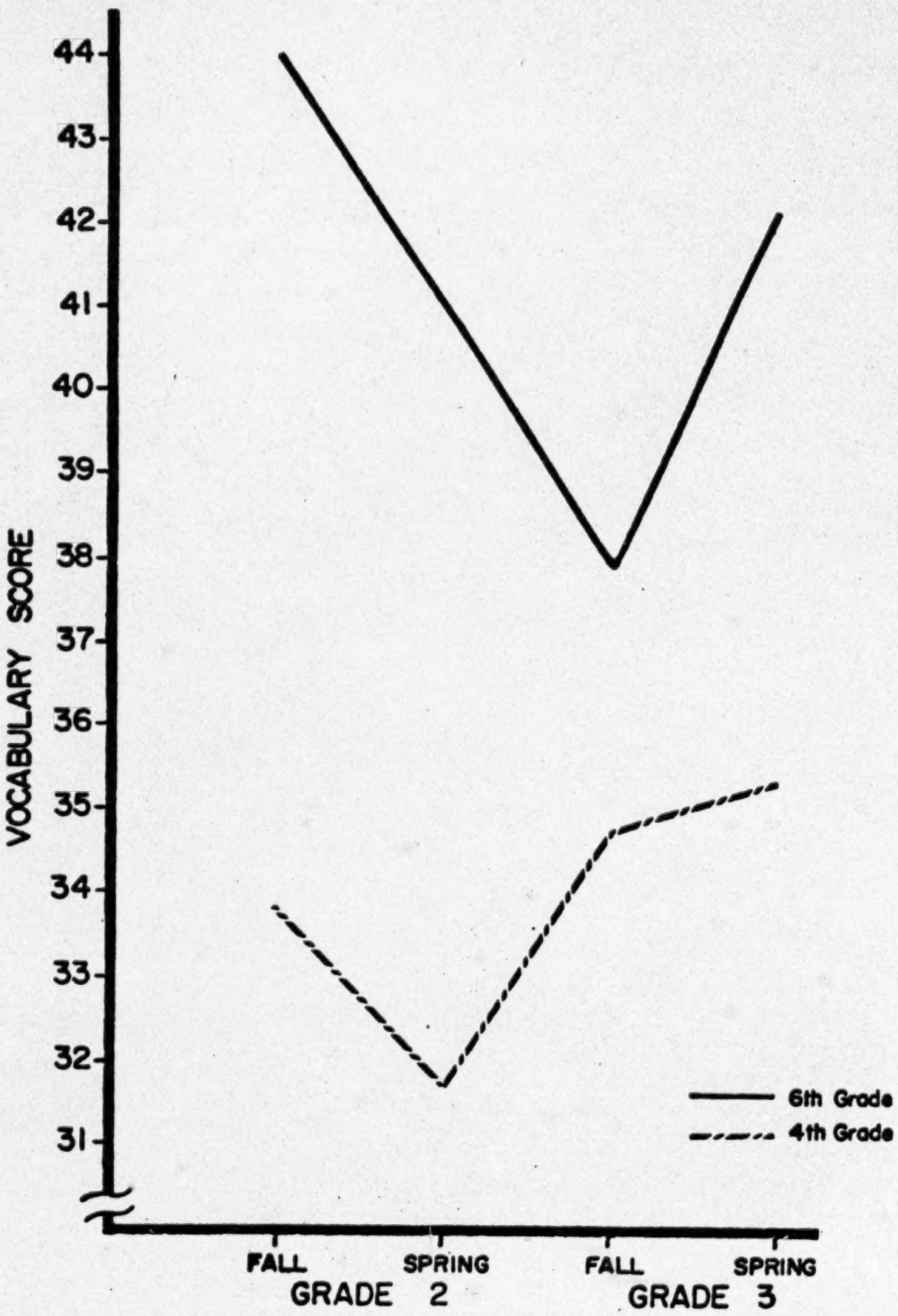

Figure I. Interaction Between Transition Time and Grade for the Vocabulary Subtest of the California Reading Test.

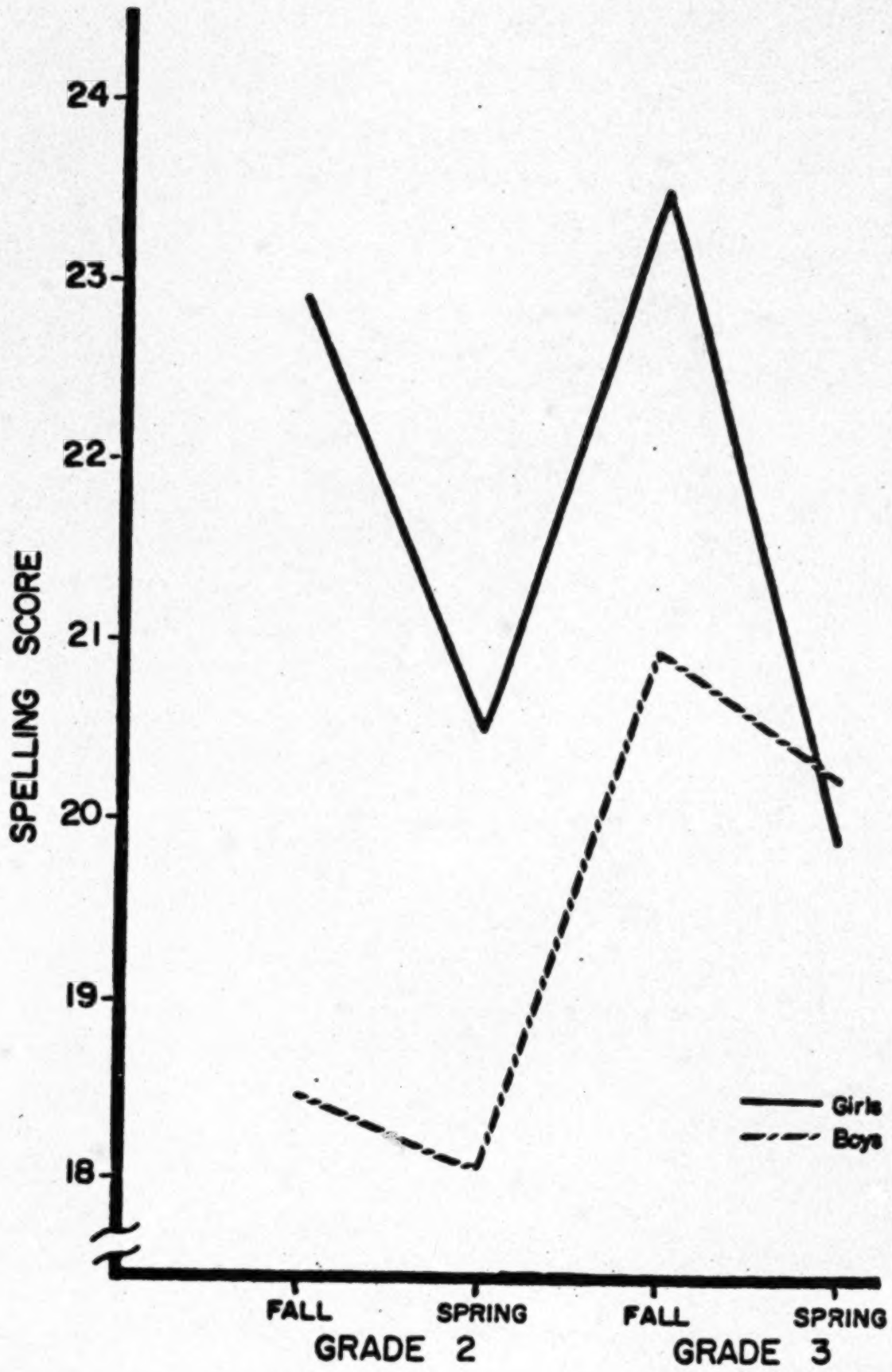

Figure II. Interaction Between Transition Time and Grade for the California Achievement Test in Spelling.

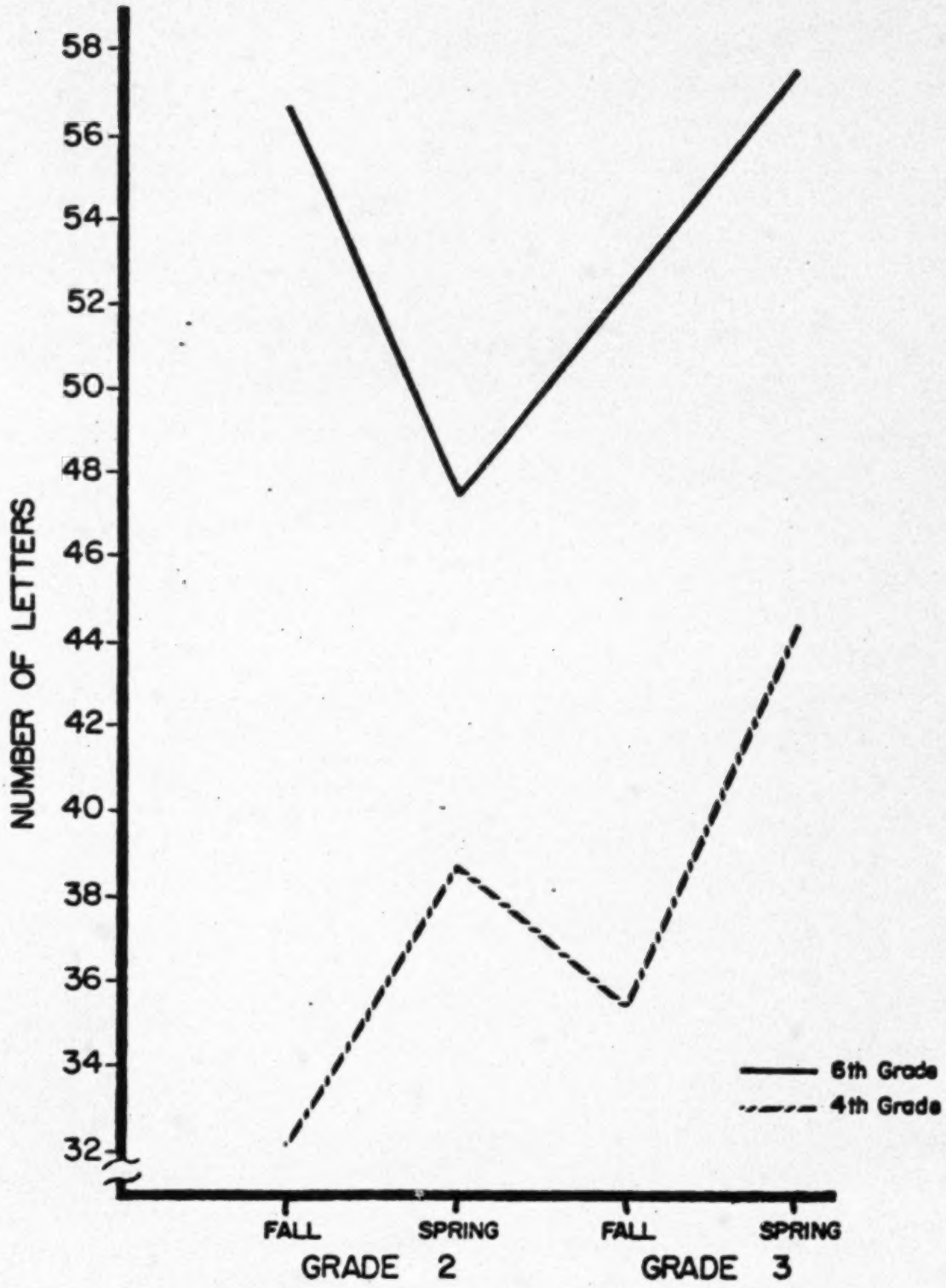

Figure III. Interaction Between Transition Time and Grade for Rate of Letter Production.

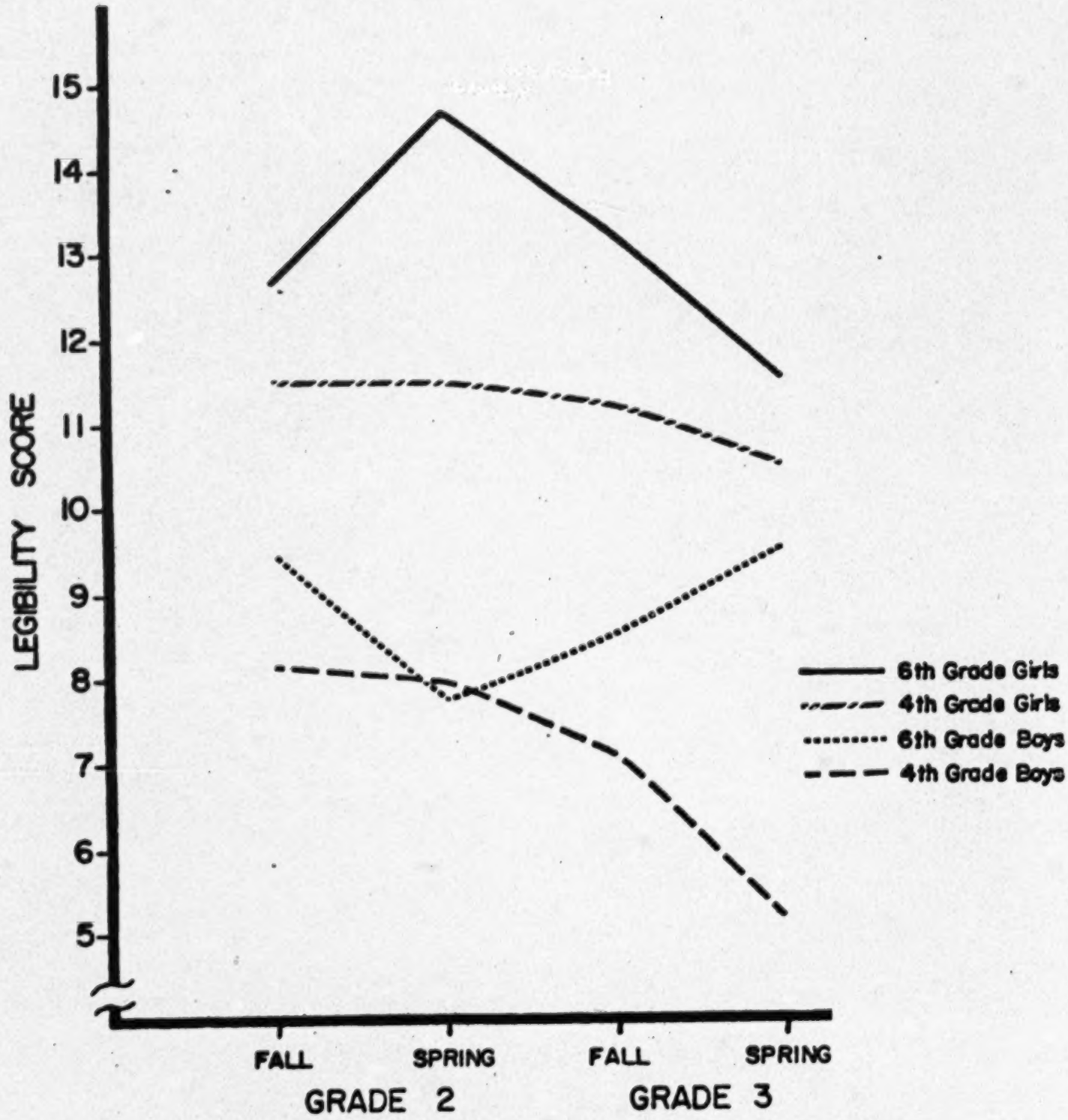

Figure IV. Triple Interaction Between Transition Time, Grade, and Sex for Handwriting Legibility as Determined by the Wisconsin Scale.